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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/770,881	02/03/2004	Haihong Zheng	873.0140.U1(US)	1059
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EXAMINER				
HUSSAIN, TAUQIR				
ART UNIT		PAPER NUMBER		
2452				
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12/02/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/770,881

**Applicant(s)**

ZHENG ET AL.

**Examiner**

TAUQIR HUSSAIN

**Art Unit**

2452

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8, 10, 11 and 16-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-11 and 16-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. This office action is in response to amendment /reconsideration filed on 09/08/2008, the amendment/reconsideration has been considered. Claims 9 and 12-15 have been canceled, claims 16-33 have been newly added. Claims 1-8, 10, 11 and 16-33 are pending for examination, the rejection cited as stated below.

***Response to Arguments***

2. Applicant's arguments filed 09/08/2008; with respect to the rejection(s) of claim(s) 1-15 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made as cited below.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-8, 10-11 and 16-33 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Takahashi et al. (Pub. No.: US 2004/0218573 A1), hereinafter, "Takahashi" in view of Venkitaraman et al. (Pub. No.: US 2003/0161287 A1), hereinafter "Venkitaraman ".

5. As to claims 1, 5, 7 and 25 (e.g. method and system), Takahashi discloses the core concept of invention substantially, including, when connecting a router of a network to an access point (AP) of an access network (AN) that includes an Access Router (AR) (Takahashi, Fig.14, [0093], where disclosed is system with Access router-30, mobile anchor-50, access point 20 and Network as 1S which is mobile communication network) sending a first neighbor advertisement from a network node (MNN), the first neighbor advertisement comprising a care of address (CoA) and a link layer address (LLA) of the MNN within the Network (Takahashi, Abstract, where care of address and link layer address are acquired from listing from existing neighboring links and further details can be found in [0061], disclosed is access node advertising part-16A, processing unit is mobile network node and care of address list creating part-16D, link layer address-16E of mobile network MN);

based on the first neighbor advertisement, constructing a first neighbor that associates the CoA with the LLA (Takahashi, [0061], where CoA and LLA are associated with respect to each other or CoA has a corresponding mapping to LLA of neighboring link with associated list and storage device are equivalent to a cache);

Takahashi however is silent on disclosing explicitly, sending a second neighbor advertisement from the MR to the AN on behalf of the MNN, the second neighbor advertisement comprising a mapping between the CoA of the MNN and a LLA of the MR (LLA\_MR); and based on the second neighbor advertisement, constructing a second neighbor that associates the CoA with the LLA\_MR.

Venkitaraman, however discloses the Monet environment in which, sending a second neighbor advertisement from the MR to the AN on behalf of the MNN, the second neighbor advertisement comprising a mapping between the CoA of the MNN and a LLA of the MR (LLA\_MR) (Venkitaraman, Fig.1, [0023], where mapping between the CoA and LLA\_MR is given and site1 and site2 are equivalent to first and second neighbor); and

based on the second neighbor advertisement, constructing a second neighbor that associates the CoA with the LLA\_MR (Venkitaraman, [0023], where functionality of mapping address as explained above is disclosed, Venkitaraman, [0026] further discloses that doing so second mobile network, in turn may attach to the third mobile network and so forth, meaning this set up can be repeated network after network).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to combine the teachings of Takahashi with the teachings of Venkitaraman in order to IP mobility for mobile networks that better supports IP mobility for detachable mobile nodes of the mobile network. Advantageously, the method and apparatus will place the majority of mobility management responsibility in a mobile router so as to reduce or eliminate the likelihood of binding update storms and so that mobile network nodes, while attached to the mobile router, need not be aware of movement of the mobile network, yet place enough mobility management responsibility to mobile nodes, on their own behalf, to facilitate their ability to perform mobility management when detached from the mobile router. The present invention is directed to satisfying these needs (Venkitaraman, [0009]).

6. As to claim 2, Takahashi and Venkitaraman discloses the invention substantially as in parent claim1 above, including, in response to an arrival of a downlink packet at the AR having a CoA in a destination address field (Takahashi, [0007], where Access router sends the advertisement to MN), checking the second neighbor cache using the CoA to obtain the associated Link layer address of the router (Takahashi, [0011], where detecting the default router on the basis of the data link layer address acquired with reference to the list of access nodes of existing neighboring links is checking the second neighbor cache mapped address between CoA and LLA);

transmitting the packet to the MR using the Link layer address of the router in a link layer destination address field (Takahashi, [0016], where message field appended to a binding update message directed to the mobility control apparatus means sending the packet to default router of network having the binding update which is updating the acquired address from the access nodes existing in the neighborhood);

in response to the arrival of the packet at the MR, checking the first CoA in an IP layer destination address field to obtain the associated Link layer address of the mobile network node (Takahashi, Fig.16, step-A15 and A16, [0103] and [0104], where after migration of MN, access node address acquiring part acquires data link layer address of AR acquired by access node address acquiring part and sets AR of entry obtained by search, as default router/MR); and

transmitting the packet to the MNN using the obtained Link layer address in the link layer destination address field (Takahashi, Fig.16, step-A18, [0106], where path

update registration requesting part transmits BU to register binding between PCoA with HoA Map which is the original address of the first advertisement network router).

Takahashi however does not explicitly disclose, neighboring cache".

Venkitaraman however discloses a similar concept of, "neighboring cache" (Venkitaraman, Fig.2, element-208, Abstract, where binding cache is equivalent to a neighboring cache).

7. As to claims 3 and 4, carry similar limitation as claims 1 and 2 therefore are rejected under for same rationale, additionally Takahashi, Fig.15, shows the set of addresses in the access node list.

8. As to claim 6, carries similar limitations as claim 2 above and therefore, is rejected for under same rationale.

9. As to claim 8, has similar limitations as claim 2 above and therefore is rejected under for same rationale.

10. As to claims 10, 11 and 29 has similar limitations as claims 7 and 8 above, therefore are rejected for under same rationale.

11. As to claim 16 is rejected under for same rationale as applied to claim 3 above.

12. As to claims 17 and 22, Takahashi and Venkitaraman discloses the invention substantially as in parent claim 16 above, including, where the link layer address of the mobile network node and link layer address of mobile router comprise different types of

link layer address (Venkitaraman, Abstract, where bindings are updated, as appropriate responsive to movement of the mobile network to other networks, therefore it is obvious that link layer address of mobile node and mobile router will be updated accordingly and depending on the network addresses will be different type).

13. As to claims 18, 23, 26 and 30, Takahashi and Venkitaraman discloses the invention substantially as in parent claim 16 above, including, where packets received by the MR for the MNN are not tunneled (Venkitaraman, [0038], where future packet directed to the mobile network from the CN may travel the shortest tree and avoid the overhead of tunneling).

14. As to claim 19, 24, 27 and 31, Takahashi and Venkitaraman discloses the invention substantially as in parent claim 16, 21, 25 and 29 above, including, receiving a packet at the MR from the AN, where the received packet includes a CoA in an internet protocol (IP) layer destination address field (Venkitaraman, [0035], where mobile router receives the packet from home agent which is part of Access point);

Checking the first neighbor cache using the CoA in the IP layer destination address field to obtain the associated LLA of the MNN (Venkitaraman, [0035], where binding cache is search to obtain link layer address of the mobile node via CoA) ; and

Transmitting the packet from the MR to the MNN using the obtained LLA of the MNN in a link layer destination address field (Venkitaraman, [0035], where after determining the link layer address by using CoA destination address field, it is indicated that mobile node is reachable, which means packet is forwarded to mobile node).



15. As to claim 20 and 28, Takahashi and Venkitaraman discloses the invention substantially as in parent claims 16 and 25 above, including, where the LLA\_MR comprises one of LLA of a set of LLAs assigned to the MR (LLA\_MRi) the method further comprising:

based on the received first neighbor advertisement, constructing a mapping table in the MR that associates the CoA of the MNN with the one LLA of the LLA\_MRi (Venkitaraman, [0038], where based on the first incoming packet binding updated is processed by mapping the subnet prefix of the mobile network to the care of address so that future packet directed to mobile network from CN by taking the shortest path).

16. As to claim 21, carries similar limitation as of claim 5 above and can be merely applied either sender or receiver end of the terminal and therefore is rejected under for same rationale as applied to claim 5 above.

17. As to claim 32 carries similar limitations as claim 25 above and is rejected under for same rationale.

18. As to claim 33 carries similar limitations as of claim 29 above and is rejected under for same rationale.

19.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAUQIR HUSSAIN whose telephone number is (571)270-1247. The examiner can normally be reached on 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on 571 272 3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. H. /  
Examiner, Art Unit 2452

/Kenny S Lin/  
Primary Examiner, Art Unit 2452